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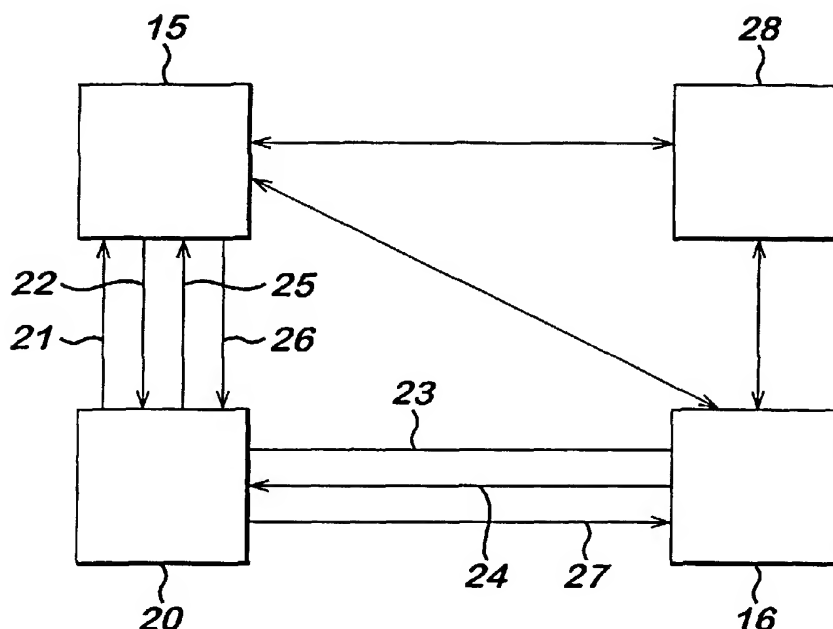
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(54) Title: CONTENT CHARGING



(57) Abstract: A method and system for providing content charging in data networks includes the steps of: when a subscriber having an account with a charging service provider uses services having a content provided by a content provider, the content charges are collected for use of the services via the charging service provider and a value is deducted from an account associated with the subscriber in response to the collected charges. The content provider is paid for the use of the content services by the subscriber after the occurrence of a predetermined event.



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For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

CONTENT CHARGING

The present invention relates to a method and system
5 for providing content charging in a data network.

Open communication networks connect large numbers of
local area networks, for example networks of various
organisations or businesses. The Internet is an example of
10 one such open communication network. These networks can be
accessed by a large number of users via user terminals, for
example personal computers, workstations or mobile
telephones. A user using a terminal may be connected to
these networks directly or via some connection device such
15 as a modem which may be a separate device or be in-built in
the user terminal. By accessing these networks a user has
access to a large quantity of data and/or services. It
will be understood that the term services is used
hereinafter to encompass various types of features
20 including products for sale, games, electronic mail or
music. All of these are accessible via various
communication networks. In many cases the service
providers will provide services via so-called world wide
web (WWW) and hypertext mark-up language (HTML) protocols.
25 These provide a visual Internet interface for the user
terminals.

Many businesses have been set up to provide services
via data networks. These businesses are said to offer
30 content services. The term content used hereinafter will
be understood to encompass the actual content of these

services whether these be primarily static web pages which display information only or recorded video or audio material or games. The businesses which create and sell content will be referred to hereinafter as content
5 providers.

Content providers may be and often are distinct from the network service providers which will typically be a telecom operator. These network service providers make
10 provision for facilities to enable users to access the services available via the data networks. As an alternative to the telecom operator it will be understood that the term network services provider can encompass other entities, for example when other network technologies are
15 used E.g. Bluetooth or wireless lan for fetching the content. In that case there is no requirement for the telecom network when fetching the content, but the charging could be done via the telecom network. In other examples the network service provider can be the combination of
20 telecom operator and company. A user has access to a company's local area network and via the local network to the internet.

In the past in order to be paid for providing their
25 content, content providers have been required to enter into formal agreements with network service providers. These agreements have themselves required the exchange of information detailing both parties such as charging information and bank details. These have been required to
30 enable the content providers to charge subscribers who use the services to which the supplied content relates.

This has the disadvantage that such agreements need to be put in place. They are slow to arrange and can even be an unmanageable process for some of the smaller content providers.

5

It is an aim of the present invention to at least partly mitigate the above-referenced problems.

According to a first aspect of the present invention
10 there is provided a method for providing content charging in data networks comprising the steps of:

at least one subscriber each having an account with a charging service provider uses services having a content provided by a first content provider;

15

collecting content charges for use of said services via said charging service provider and deducting a value from the account associated with said at least one subscriber in response to said collected charges; whereby

20 the first content provider is paid for the use of said content services by said at least one subscriber after the occurrence of a predetermined event.

Embodiments of the present invention provide the
25 advantage that a charging service provider which holds records of subscribers which either have a prepaid quota of credit or are trusted and have a good credit rating. Prior to the supply of content to such subscribers when they use the Internet their credit is checked by the charging
30 service provider. If credit is good meaning they have either prepaid money on account or are trusted to pay their bills, the charging service provider gives an indication

that the user can be provided with the content. At this stage the charging service provider is supplied with details of the content provider providing the content being purchased by the user. This includes contact details and
5 details of the charge levied for supply of the content. The money exchanged for the content is paid to the charging service provider. Thereafter the charging service provider can transfer money owed to the content provider either upon request by the content provider or when the charging
10 service provider has accumulated a predetermined amount owed to the content provider. In this way content providers can simply add and remove content for offer to users without the need to keep exchanging information directly with various other parties.

15

Embodiments of the present invention will now be described hereinafter by way of example only with reference to the accompanying drawings in which:

20 Figure 1 illustrates a system arranged to enable users to access content services.

Figure 2 illustrates the exchange of data carried out when a user purchases content services.

25

Figure 3 illustrates how a charging service provider transfers funds.

30 Figure 1 illustrates a system according to an embodiment of the present invention. An open communication network 10 includes a number of local area networks and may for example be the Internet. The Internet 10 can be

accessed by many users via user terminals. The term user terminal will be understood to include any device which enables a user to gain access to the Internet. For example a personal computer 11 or WAP (wireless application protocol) phone 12. The user terminals can be connected to the Internet 10 either directly or via modem or other such device as is known in the art. In figure 1 the WAP phone is connected to the Internet 10 via a radio interface 13 and base station 14.

In this way a user of the computer terminal 11 or WAP phone can browse (or surf) the Internet with a view to locating information or other services of interest. Many web sites on the Internet provide information or services free of charge. However some services require payment before they are supplied or indeed accessible to a user. In this sense it will be understood that the term services is used broadly to define something desired by a user. This can include web pages which are primarily static and supply only information such as weather reports or gambling data or recorded video or audio information such as downloading a video or records. Alternatively the services may comprise games, products, features or services such as electronic mail, assistance or advisory services.

The content of web pages which is accessed by these users is created and/or assimilated and/or kept up to date by a content provider. These are companies who make money by being paid for providing the content for services used by the user. One such content provider 15 is shown in figure 1 although it will be understood that there are in

fact many such content providers each providing content for associated web pages.

5 A charging service provider 16 is also shown in figure 1. This represents a further party to which users of the Internet can subscribe in order to gain access to services. Users can either subscribe as prepaid users, in which case they pay a prepaid amount to the charging service provider, or post-paid users. In this latter case the credit
10 worthiness of a user subscribing to the charging service provider 16 must first be established. Typically a post-paid subscriber will be allocated a credit limit. They can access services having a value up to this credit limit but must pay at least some of the charges before any further
15 services can be purchased. In each case a record associated with each subscriber is stored via the charging service provider 16. As services are utilised by a subscriber the charges levied by the associated content provider 15 for that service are logged against the
20 subscriber record. This will either result in a value in the record being decremented or a value in the record being incremented. This depends upon whether the subscriber is a prepaid or post-paid subscriber.

25 Figure 2 illustrates a process of content charging in accordance with an embodiment of the present invention. A user 20 who may be using a WAP phone 12 or other user terminal identifies a service which the user 20 wishes to purchase. For example the user may wish to download a
30 video from a web site on the Internet. The content provider 15 who wishes to offer this service has a content server (e.g. WAP server) on which is stored the video (or

content) required. The web page associated with the service includes a content proposal page which includes the information which the content provider has in the page. E.g. content information, a small example of the content, price, or information if the price is zero.

The user 20 indicates himself to the content provider 15 as being a user wishing to obtain and pay for the content on that page. Identification and authentication of the user need not take place at this stage.

10

This is done via signal 21 shown in figure 2. By for example clicking a button displayed on the web page the user indicates his desire for the content. This causes the content provider 15 to download data 22 over the data link- to the user terminal. This data does not, at this stage, comprise the content desired by the user. Rather an acceptance question together with charging information is supplied to the user. This charging information includes the price which the user would have to pay to obtain the service content together with the content providers mail address and content provider's bank account number. If the user finds the price for the service to be satisfactory they contact a charging service provider 16 to which they either already subscribe or to which they then subscribe. This may be done automatically by data processors in the user terminal in response to the signals received from the content provider.

Alternatively the user could start the procedure by clicking a button (or activating a menu item)in the terminal, which starts the charging procedure.

The contact made between the user terminal and charging service provider 16 is illustrated by connection 23 in figure 2. During this connection data is transferred to the charging service provider 16 which identifies content charging data (i.e. the charge which is to be levied for providing the subscriber with the required service).

The charging service provider 16 then checks to see if the subscriber has sufficient funds or credit to purchase the content. In the case of a prepaid subscriber the user is first required to prepay a sum of money which is paid into an account with the charging service provider associated with that subscriber. This sum has a value which is decremented as the subscriber purchases content. Once the value has dropped to zero or to a value which is less than the cost of a service a user is trying to purchase, the subscriber is prompted to prepay more money. Service will not be enabled unless the subscriber has sufficient funds.

20

Alternatively the charging service provider 16 can operate a post-paid system whereby subscribers initially are asked to prove their credit worthiness and are thereafter allocated a credit limit. This credit limit is only provided after a credit check has been carried out and the credit limit itself has a value which is decremented as services are purchased. This decrementation is carried out in accordance with the purchased content service price. From time to time subscribers are asked to pay off outstanding debts. If these payments are not made or if the credit limit is reached subscribers are prompted to

30

make a payment. They are not permitted to obtain further content services until such payments are made.

The content service provider 16 thus either indicates
5 the transaction can be accepted, i.e. the subscriber has sufficient prepaid funds or credit or the charging service provider 16 indicates the transaction cannot be carried out. This is reported to the user 20 via a signal shown as connection 24. This includes a transaction ID for the
10 content transaction (i.e. an identifier) which is associated with that particular transaction so that a record of it may be readily identified at a later date if so required. Also included are details of the charging service provider 16 used by the subscriber.

15

Thereafter the user 20 can choose to accept or not accept the transaction i.e. can indicate whether or not to pay for the content. If the user accepts and purchases the service content, details of the charging service provider
20 16 are sent from the user terminal (which has just received these from the charging service provider 16 in signal 24) to the content provider 15 along with the content transaction ID, the charging service provider 16 mail address, and the content price. This is illustrated as
25 signal 25.

Having received these details the content provider 15 provides the user with the content together with the content transaction ID. This is illustrated as signal 26.
30 Having received this data the user terminal used by the user 20 signals the content charge (together with transaction ID) to the charging service provider 16 via a

signal 27. After this the subscribers account is debited by an amount corresponding to the charge paid by the user for the content purchased for that transaction ID.

5 In this way content can be purchased from a content provider 15 to whom no previous contact has been made with either the user or charging service provider 16. The details of the charging service provider and content provider are transferred at substantially the same time as
10 the user purchases and obtains the content. These bank details and address details are transferred automatically as the transaction is carried out.

In this way new content providers can offer their-
15 services without the lengthy agreements between content provider and charging service provider being in place. It is sufficient that the content provider has a record, associated with the transaction ID of the transaction. This record can, for example, identify the user, details of
20 the charging service provider which has been paid by the user and how much the user has paid. Other details could be included as will be understood by persons skilled in the art. For example
there could be also information about the content ("MP3:
25 Bruce Springsteen/River"). It is also possible that this kind of information could be exchanged to the charging service provider together with price.

Likewise the charging service provider has a record of the transaction and receives the details of the particular
30 content provider which supplied the content purchased by the user. In order to pay the content provider the charging service provider can use a standard bank transfer

into the bank account 28 of the content provider. Details of this account and of the content provider have already been provided from the content provider via the user terminal during the content purchasing transactions. The charging service provider can either carry out the bank transfer once the amount of money paid by users to the charging service provider in respect of a certain one of the many possible content providers has reached a predetermined value, say £1000, or the content provider can request a bank transfer to be carried out by directly requesting this using the charging service provider details which it has received during the transaction and which are stored in memory associated with each transaction ID.

Figure 3 illustrates how the transfer of funds takes place from the charging service provider 16 to the content provider 15. As users purchase content services from various content providers 15 they pay the charging service provider 16. The charging service provider accumulates funds accordingly. The funds are stored in a way which enables the charging service provider to identify the funds which have been paid in respect of transactions associated with each particular content provider. The charging service provider will have an account for each content provider it has handled a transaction on behalf of.

The charging service provider periodically checks whether the accumulated funds owed to any one content provider exceeds a minimum bank transfer limit. This predetermined limit can be set at any pre-agreed level for example £1000 or £10,000. When the charging service provider has accumulated payments made by users in respect

of a particular content provider which exceed this predetermined limit the content provider is identified for payment. A signal 30 is sent from the charging service provider 16 to the content provider 15. This signal
5 comprises content payment mail which includes for example a request for unpaid transaction identity numbers, prices of each identified transaction, a bank account number and a mail address. The content provider keeps records of each transaction in which a user has purchased content from that
10 content provider. These transactions are identified by the transaction ID created for each transaction. Records in the content provider may be identified by the transaction ID and hold the price paid for that transaction and details of the content service provider used by the user to make-
15 payment. These details are provided to the charging service provider 16 via a signal 31 from the content provider to the charging service provider 16 in response to the signal 30.

20 The charging service provider 16 compares the details it holds for the transactions with those sent from the content provider 15 (via signal 31). The transaction ID's are compared as are price and bank account details. If all match the charging service provider transfers funds via a
25 bank transfer 32 to the content provider bank account 28. This might be confirmed via a signal from the charging service provider to the content provider that payment has been made.

30 If the details associated with the transaction identifications do not match the content provider is

informed via a signal 33. The charging service provider identifies mismatches and asks for clarification.

As an alternative to transferring funds when a minimum
5 bank transfer limit is reached a charging service provider can carry out a transfer when a predetermined time interval since the last payment has been reached or on predetermined transfer days such as the first day of every month.

10 In embodiments of the present invention the content provider is provided with means for storing details of each content transaction identifier (ID) together with details of the charging service provider associated with that transaction, the content price and whether or not the
15 transaction was accepted. Likewise the content provider should maintain records detailing each charging service provider 16 with which a user, purchasing content from the content provider has carried out a transaction.

20 The charging service provider includes means for storing details of users who subscribe and who have either prepaid accounts, in which case a record must be kept of the remaining prepaid sum, or credit accounts, in which case a record must be kept of the remaining unused credit.
25 Each user should be identifiable in some way (such as by noting their MSISDN (mobile subscriber ISDN number). For each subscriber the charging service provider holds a list of transactions. These can be identified by the unique content transaction ID allocated to each transaction. For
30 each transaction the content price and whether or not the transaction was accepted or not is logged. Details of remaining credit limit or prepaid value are also kept.

The charging service provider also holds details for each content provider into which a subscriber has entered a transaction. This content provider account store holds details identifying the content provider, the transaction identifier, the content price, whether the transaction was accepted or not and whether the transaction and content loading was successfully completed. This latter feature could identify when downloading doesn't succeed for some reason(cancelled, interrupted etc.). The charging service provider may also hold details of the accumulated amount of money that the charging service provider has to pay to the content provider.

A separate store in the charging service provider may contain details for each content provider such as name, mailing address and bank account details.

Embodiments of the present invention provide a method and apparatus which enables content providers to charge users for the supply of content. These users may be prepaid users. Embodiments make it easy to start a new content provider service and get users to use it as the system allows an easy way for charges to be billed. The charging service provider collects content charges and accumulates these to relatively large amounts before the money is transferred to the content provider. Normal bank transfers may be used to transfer the money. Content providers always have an account in a bank. Charging service providers have a connection which enables them to pay money to bank accounts. The bank account of the

content provider's may be used as a link between the charging service provider and the content provider.

Embodiments of the present invention provide a
5 protocol which defines that the content charging data of the content provider is sent to the service provider. The content price is sent to the subscriber for subscriber acceptance. The content price is sent to the service
10 provider so that the service provider can decrease that price from the users account. The acceptance of the user is thereafter sent to the content service provider.

The charging service provider sends a charging request to the content provider who has to send charging response
15 with all charging information. The charging requests and responses are exchanged, for example via e-mail or some other mutually agreed protocol or method suitable to charging.

20 In certain embodiments there is a specified format by which the charging service provider sends the charging request to the content provider when there is enough money to be paid to the content provider.

25 Embodiments of the present invention provide the advantage that prepaid users can use all content pages in the world if the charging service provider to which the prepaid user subscribes offers content charging in
30 accordance with the present invention. Content providers only are required to take care about the content prices and the charging service providers do not have to care about them at all. In other words when content providers wish to

remove some service they can just remove them. When they want to change the price they change the price and change their web page and content charging data which is sent with that web page.

5

It will be understood that the protocols used for transferring and funds between charging service provider, content provider and bank accounts must be secure so that the data cannot be used by any unauthorised third party.

10

It will be understood that the charging service provider may be a pre-existing telecom operator who provides the telecom service to enable the user to access the Internet. Alternatively the charging service provider -
15 may be any third party such as a separate business which is trusted by the content service provider.

If the charging service provider is the telecom operator the network access charges can be also charged from the same account, so it makes the end-user life easier in that
20 way. It would be possible under these of other circumstances for the network service provider to take some amount of money for themselves when they handle that charging. E.g. 0.2 % of each case.

25 It will also be understood by those skilled in the art that modification could be made to the above described examples without departing from the scope of the present invention.

30

CLAIMS:

1. A method for providing content charging in data networks comprising the steps of:

5 at least one subscriber each having an account with a charging service provider uses services having a content provided by a first content provider;

collecting content charges for use of said services via said charging service provider and deducting a value
10 from the account associated with said at least one subscriber in response to said collected charges; whereby

the first content provider is paid for the use of said content services by said at least one subscriber after the occurrence of a predetermined event.

15

2. The method as claimed in claim 1 wherein said predetermined event comprises the charging service provider collecting a predetermined amount of collected charges associated with said first content provider.

20

3. The method as claimed in claim 1 wherein said occurrence of a predetermined event comprises said charging service provider receiving a request for payment from said first content provider.

25

4. The method as claimed in any one of claims 1 to 3 wherein said method provides prepaid content charging and further comprises the steps of:

providing each said at least one subscriber with a
30 prepaid account in which a value associated with a sum prepaid by the subscriber is stored; and

deducting a value from said stored value in response to said collected charges.

5. The method as claimed in any one of claims 1 to 3 wherein said method provides post-paid content charging and further comprises the steps of:

providing each said at least one subscriber with an account having a predetermined credit limit associated with that subscriber; and

deducting a value from said account in response to said collected charges providing the total value deducted from said account does not exceed said credit limit.

6. The method as claimed in claim 5 further comprising the steps of:

denying said at least one subscriber access to said services if the total value of charges deducted from the associated account exceeds said credit limit.

7. The method as claimed in any preceding claim wherein said step of collecting content charges comprises;

when a subscriber uses a page associated with said first content provider the steps of:

sending content charging data from the content provider to the charging service provider.

8. The method as claimed in any one of claims 1 to 7 further comprising the steps of sending the charge for use of the content to said subscriber for acceptance prior to decrementing said subscriber account.

9. The method as claimed in any one of claims 1 to 8 further comprising the steps of:

5 sending the content charge from the content provider via a user terminal to the service provider to enable the collection of content charges.

10. The method as claimed in claim 1 wherein the predetermined event comprises the occurrence of a predetermined date.

10

11. The method as claimed in preceding claim further comprising the steps of:

15 providing details of said content provider to said charging service provider only subsequent to a user requesting content from said content provider.

12. The method as claimed in claim 1 further comprising the steps of, when said user comprises a prepaid subscriber of said charging service provider:

20 the subscriber only paying money to the charging service provider for supplied content.

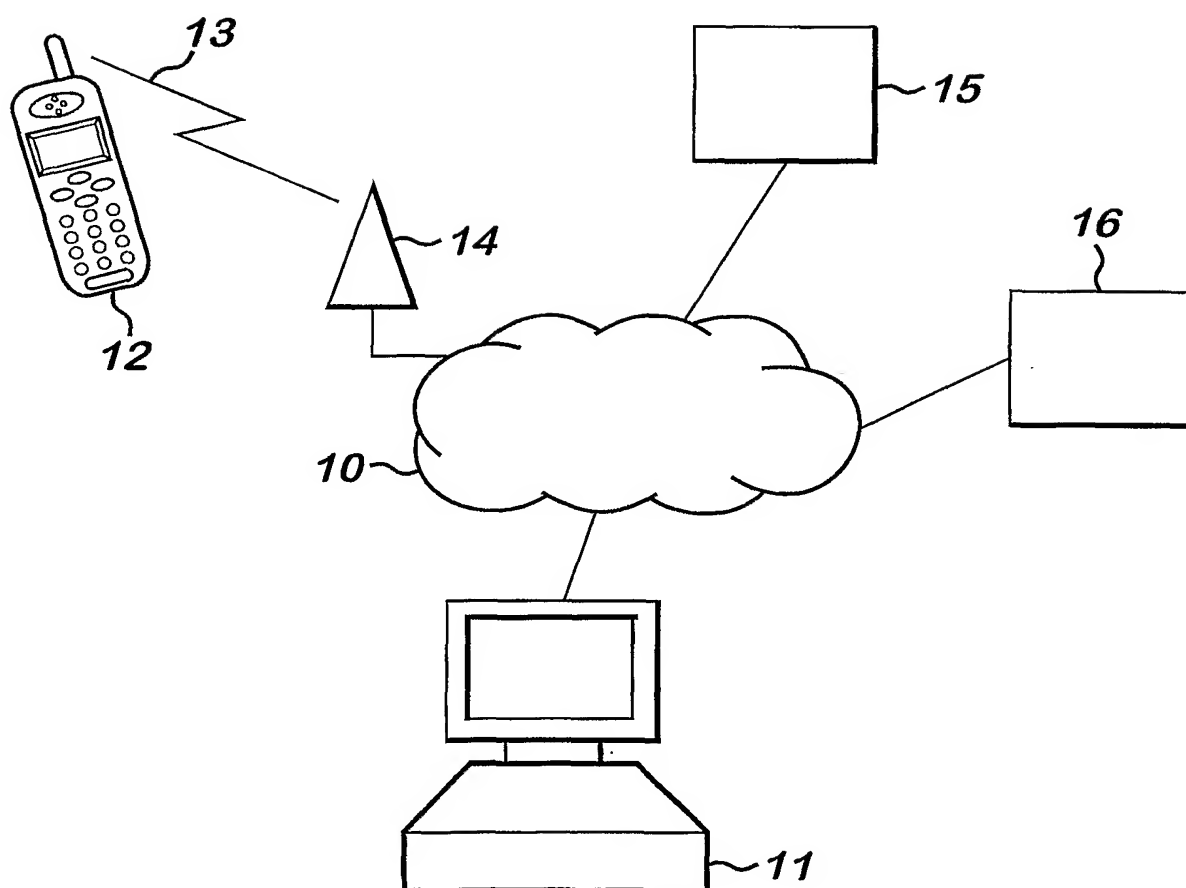
13. The method as claimed in any preceding claim further comprising the steps of:

25 via the content provider, changing a price for content supplied via the content provider and notifying said charging service provider of the price change only when a user attempts to purchase content at said new price.

30 14. A system arranged to carry out the method of any one of the preceding claims 1 to 13.

15. A user terminal arranged to carry out the method as claimed in any one of the claims 1 to 13.

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Fig. 1

2/2

Fig. 2

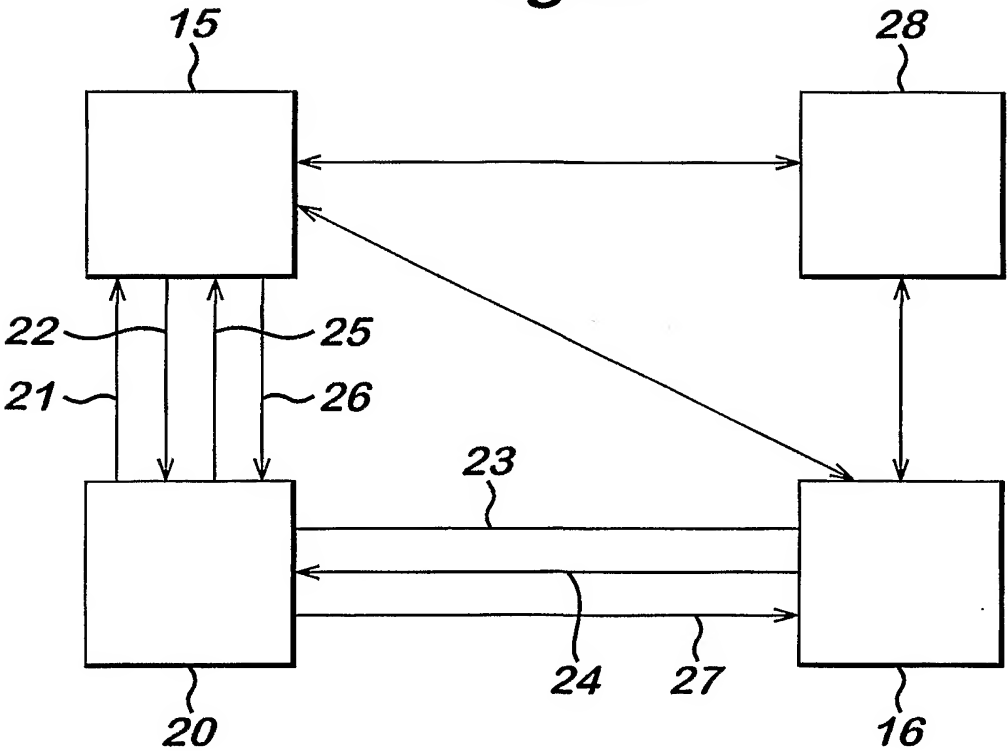
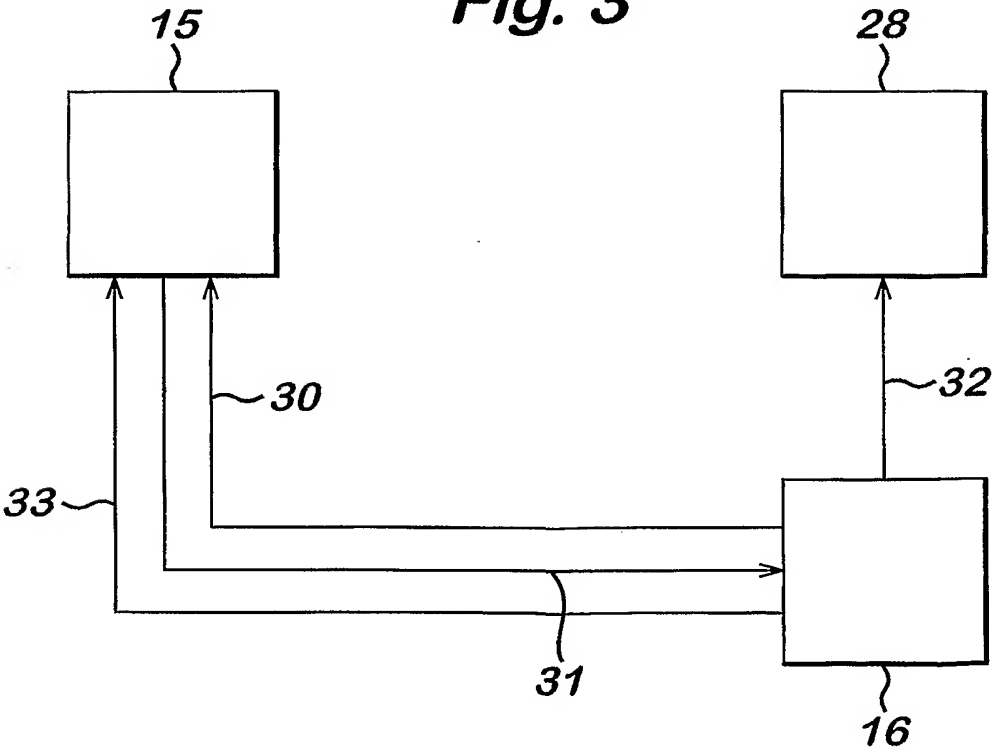


Fig. 3



INTERNATIONAL SEARCH REPORT

International Application No

PCT/IB 02/00961

A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 G06F17/60 G07F19/00 G07F17/16

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 H04L G06F G07F

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	PAYS P ET AL: "An intermediation and payment system technology" COMPUTER NETWORKS AND ISDN SYSTEMS,NL,NORTH HOLLAND PUBLISHING. AMSTERDAM, vol. 28, no. 11, 1 May 1996 (1996-05-01), pages 1197-1206, XP004018220 ISSN: 0169-7552	1,4,9, 14,15
Y	paragraph '0003! - paragraph '03.2!; figures 1,4	5-8,12, 13
Y	US 5 878 141 A (DALY MICHAEL T ET AL) 2 March 1999 (1999-03-02) column 4, line 49 - line 59 column 13, line 22 - line 35 claims 40,49-51; figures 6,7	5,6

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☒ Further documents are listed in the continuation of box C.☒ Patent family members are listed in annex.

° Special categories of cited documents:

A document defining the general state of the art which is not considered to be of particular relevance

E earlier document but published on or after the international filing date

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O document referring to an oral disclosure, use, exhibition or other means

P document published prior to the international filing date but later than the priority date claimed

T later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

X document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

Y document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

& document member of the same patent family

Date of the actual completion of the international search

26 August 2002

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Name and mailing address of the ISA

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INTERNATIONAL SEARCH REPORT

International Application No

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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	EP 0 812 081 A (SONY CORP) 10 December 1997 (1997-12-10) column 3, line 25 - line 37 claims 1,2; figures 1,2 ---	7
Y	WO 99 31610 A (BRITISH TELECOMM ; LEVERIDGE PHILIP CHARLES (GB)) 24 June 1999 (1999-06-24) page 4, line 19 - page 5, line 2 abstract; claims 19,20 ---	8,13
Y	WO 00 77747 A (SUN MICROSYSTEMS INC) 21 December 2000 (2000-12-21)	12
A	page 2, line 18 - line 29 claims 1,9; figures 1,2 ---	1
A	EP 1 033 854 A (PITNEY BOWES) 6 September 2000 (2000-09-06) ---	
A	WO 01 03090 A (POWELL ANDREW JAMES ; TOWNSEND ANDREW SIMON (GB); EDEN GARTH (GB);) 11 January 2001 (2001-01-11) -----	

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/IB 02/00961

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
US 5878141	A	02-03-1999	NONE	
EP 0812081	A	10-12-1997	JP 9325994 A EP 0812081 A2 US 2002026415 A1	16-12-1997 10-12-1997 28-02-2002
WO 9931610	A	24-06-1999	AU 1570399 A CA 2313388 A1 CN 1282432 T EP 1040437 A1 WO 9931610 A1 JP 2002509300 T	05-07-1999 24-06-1999 31-01-2001 04-10-2000 24-06-1999 26-03-2002
WO 0077747	A	21-12-2000	AU 5155100 A EP 1192605 A1 WO 0077747 A1	02-01-2001 03-04-2002 21-12-2000
EP 1033854	A	06-09-2000	EP 1033854 A2	06-09-2000
WO 0103090	A	11-01-2001	AU 5691600 A WO 0103090 A1	22-01-2001 11-01-2001